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Electrical World

News Issue

FEBRUARY 7, 1948

Marshall McK. Koch, Newly Elected Vice-President, Public Service Co of Colorado

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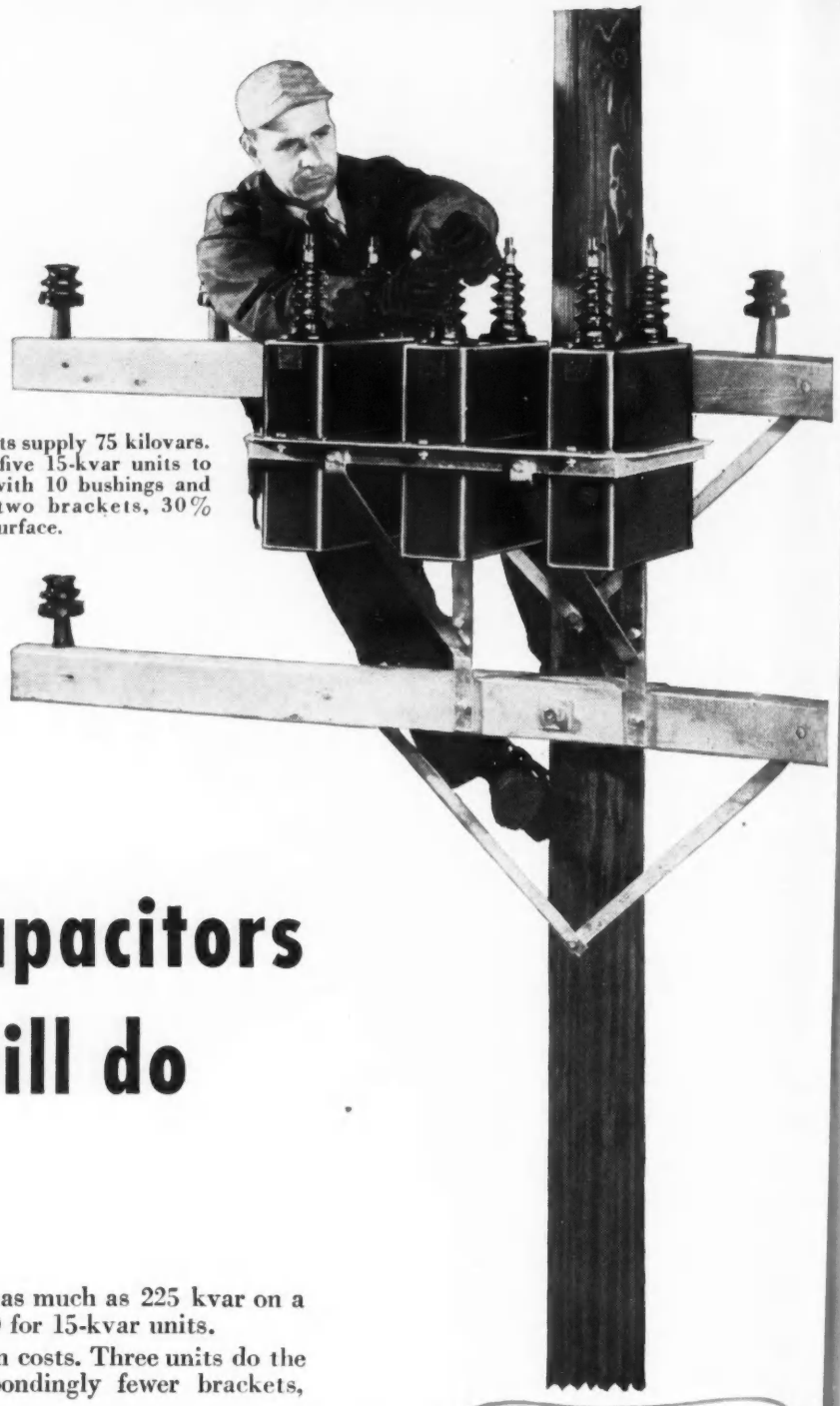

These three units supply 75 kilovars. It would take five 15-kvar units to equal them—with 10 bushings and connections, two brackets, 30% more exposed surface.

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ELECTRICAL INDUSTRY'S WEEKLY NEWS REPORT

The Electrical Week

Private power in the Pacific Northwest is studying whether it can resume investment in generating plant. After a dozen years in which the government has put in all the new capacity and declared that it alone bears responsibilty for new capacity, the utilities find they must add plant if short-term load increases are to be met. In Washington, the inevitable struggle over TVA seems to have arrived. The issue: TVA is running out of hydro resources but not out of load increases. Shall the "navigation and flood control" development, in which power was but "incidental" and a "yardstick", go in for steam-electric generation? Again in Washington, the Atomic Energy Commission put out a report which shows some dimensions of atomic-electric power. In Pittsburgh, almost 3,000 AIEE members jammed the highly-successful mid-winter meeting.

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Have you noticed the relatively heavy spurt, during the past three weeks, of information indicating that the Russians may want an end to the international nonsense of the last year or more? In published and confidential reports, we've seen at least half a dozen such stories.

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Public Service of New Jersey reported 42 tripouts on its 132-kv system without serious system disturbance during the recent ice storm.

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Federal Power Act amendment this year now looks likely, probably as recommended by FPC and the state commissions (EW, Jan 31, p 36). There is mounting Congressional sentiment, especially in the House, to "do something" about the Miller bills and other proposed amendments.

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The Federal Power Commission has finally been admitted to the lodge. One of the electric utility industry's top spokesman, without mentioning FPC by name, said this recently: "Changes in financial practice over the last decade have been mostly for our own good. There is no question but that we're better off than we were 10 years ago."

NLRB is setting new records every month in elections held. Records show the unions winning less often than they did before Taft-Hartley. And they are losing most of the decertification polls. But, up to Dec 31, they had won all but three elections on authorization of the union shop.

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One of the largest life insurance companies holds $550 millions worth of utility bonds, representing 13 percent of its assets. Forty percent of these were bought in 1947.

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There IS a bright spot in the industry's earnings picture. As new generating stations come into service, fuel economies will be startling. One of the largest electric utilities in the land expects to lower its system coal rate 30 percent when a new plant comes in. Its first unit is due next year. Even before all units are installed there, that plant's effect will be so great as to INCREASE the net for common shareholders if 50,000 kw of load were to disappear.

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Economics of fuels has re-opened the question of railway electrification, even for roads with moderate traffic. Papers and discussion at AIEE's recent winter meeting emphasize this.

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One of New York's better known investment bankers has a tip for electric utilities which are considering selling common stocks. If you happen to have long-term natural gas contracts, don't hesitate to tell the world about it. Common stocks of such systems now sell at a premium, he says.

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That preliminary report which Congress's Joint Committee on Labor-Management Relations must file by March 15 will not recommend amendment of the Taft-Hartley Act. Essentially, it will be a progress report.

. . .

One of the Administration's star ball carriers in the Marshall Plan struggle has this to say of socialism: "Only wealthy countries can afford socialism. Only poor countries adopt it."

Private Utilities in Northwest May Add More Power Plants

Reversal of Long-Time Trend Seen as Government Stations Fail to Supply Energy Needs—GOP Economy Bloc Encouraged Private Systems—$50,000,000 May Be Needed by Utilities

NON-FEDERAL ELECTRIC UTILITIES in the Pacific Northwest may spend millions for new generating plant.

This potential reversal of a dozen-year trend depends on a study now being made by private and municipal utilities. The study is "short-term"—to determine where and how additional generating capability can most quickly be brought into operation before 1952. Of primary interest in the study is the installation of additional units in existing plants and increases in water storage capacity.

In Washington and Oregon, where virtually no private investment has been made in generating plant since the mid-1930's, the study is based on two startling premises:

1. The federal government, at least before 1952, cannot make good on its repeated assurance that it bears all responsibility for new capacity installations.

2. At least some of the private utilities believe the federal government wants them to make such investment.

Potential private investment in new generating plant could exceed $50,000,000 in Washington and Oregon alone. But numerous obstacles—in part the accumulation of a dozen years of bitter dispute—stand between today's study and new, privately owned plant in operation.

No Federal Additions until 1952

Today's study of possible pre-1952 additions to generating plant is based on load forecasts. These show that until the first new federal projects come into operation—in 1952 or 1953, at Hungry Horse or McNary dams—there won't begin to be enough capacity added to meet the loads. Five new 120,000-kw machines are scheduled for Grand Coulee this year and next. Thereafter, no more are scheduled before 1952.

But the load forecasts, agreed to by all regional suppliers, show load increases through 1951 of 1,390,000 kw. This explains federal failure to fulfill the boast that the U. S. government bears the responsibility for future capacity additions in the Pacific Northwest.

The belief by private utilities that the government wants them to bear an increased share of the regional power supply burden is less easily explained. But the fact that these companies are studying the matter is proof that it exists. In part, this belief probably sprang first from last year's appropriation hearings before a House committee considering the Interior bill. There, it developed that the GOP economy bloc was interested in the idea that the companies might save some federal investment by building facilities themselves. About the same thing happened last summer, when the Interior subcommittee of the House Appropriations Committee toured the region, studying power supply. That trip developed more encouragement for private investment.

(In some informed quarters, it is suggested that the opinions of a few Congressmen do not justify any belief that "the government" wants the private companies to expand their generating plant.)

Regardless of political considerations, a decision to expand private generating equipment in the Pacific Northwest might be based solely on the load forecasts and the plain fact that federal additions before 1952 won't meet the prospective load growth.

It has been emphasized that the private systems of the region are not now contemplating capacity additions beyond the "short-term" study now under way. Private additions beyond 1951 will depend, ELECTRICAL WORLD was told, upon whatever develops in federal power policy.

Apparently, those who authorized the "short-term" expansion study now in progress are not worried about their ability to finance any projects they might decide to build. It is agreed that financing such plant, in the face of heavy federal competition, could not be done as attractively as it might be done elsewhere. But the belief reigns that such projects can be financed if they can be shown to be economically sound. Again, the region's prospective load growth puts a premium on almost any sound hydroelectric development.

Short-Term Possibilities Listed

Among the "short-term" expansion possibilities in the region are the following:

1. The Lewis River, in Washington, on which "as much as $30,000,000 could be spent." Already, Pacific Power & Light Co is installing a 45,000-kw unit at its Ariel Dam, for operation in November, 1949.

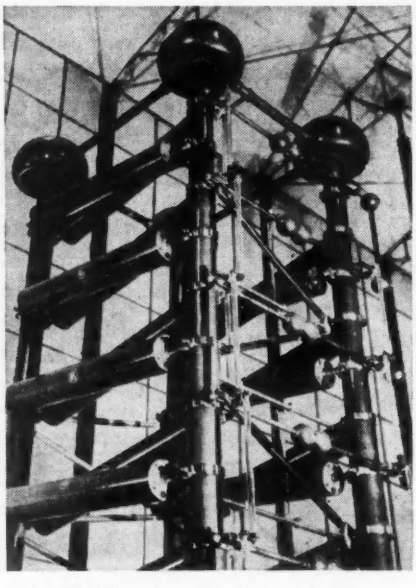
2. Rock Island Dam of the Puget Sound Power & Light Co, on the Columbia River. It was made clear that Puget Sound is not participating in the short-term expansion now under study, whatever it might be doing on its own. But it was pointed out that as much as 120,000 kw could be installed here relatively rapidly, at an estimated cost of perhaps $20,000,000.

3. In a recent statement, Seattle's municipal system said it "contemplates" installation of 420,000 kw between 1950 and 1956 in its Gorge and Ross Dams. Of this, 60,000 kw in Gorge Dam was set for 1950. The two Ross additions of 180,000 kw apiece, were set for 1952 and 1956.

4. Additional output from Chelan plant of the Washington Power Co. As is the case with Rock Island, this plant faces PUD condemnation, which might prevent further private investment there.

Other possibilities for private expansion which have been discussed, but which are not in the "short-term" study, are:

1. Privately-owned capacity in a Snake River dam to be constructed by the Army Engineers. Since no appro-



BELGIUM, whose Congo colony produces 60 percent of the world's supply of uranium ore, has built what is claimed to be Europe's first nuclear research laboratory at Baudour. This tension elevator operates at 1,800,000 v and 10,000 amp

priations are available for Snake dam construction and the project is still only in the planning stage, this would not be possible for inclusion in any pre-1952 program. Further, the Federal Power Commission has thus far refused to license further private installations on streams in which the federal government has expressed any real interest.

2. A 56,000-kw unit now being installed in the Kerr Dam of the Montana Power Co for operation no later than next Jan 1.

3. A possible new hydro plant by the Montana Power Co between Black Eagle and Ryan.

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Industry Employment Up

Employment in the electric light and power industry continued to rise during December, when it reached 270,000, according to preliminary figures of the Bureau of Labor Statistics. This was 10.5 percent above the average monthly employment during 1939 and 18,000 employees more than in December, 1946, 2,000 more than last November, and 3,000 more than last October.

Proposed TVA Steam Plant Reopens Old Controversy

Congressional Battle Lines Forming to Answer Question, "Should U. S. Build Steam-Electric Generating Plants?"— Clapp Reviews TVA's Plant Problem for *Electrical World*

CONGRESSIONAL BATTLE LINES began forming this week for another round in the old controversy over whether the federal government should build steam-electric generating plants.

This time, the row involves the Tennessee Valley Authority and its budget request for funds to start a $60,000,000 thermal plant in Western Tennessee. Traditionally, Congress generally has rejected such projects, but TVA proponents are confident.

Already the debate—which will not be formally joined until TVA's annual appropriation bill reaches the House—has developed several important questions. Among them are the following:

Has TVA reached the limits of its potential hydroelectric development?

If so, must the government undertake to meet power demands of TVA's present and prospective customers by financing steam plants in the area?

In an interview with ELECTRICAL WORLD, TVA Chairman Gordon R. Clapp gave his answers to these questions. In effect, it was "yes" on both points.

Additional capacity being installed in new and existing hydroelectric plants of the TVA system, he said, will provide sufficient energy to meet the prospective load as forecast by the agency's planning staff. But the system faces a "critical period" starting in 1951 or 1952, according to this forecast. In that period, Clapp asserted. the forecast indicates "a need for an increment of about 300,000 kw over and above TVA's hydro generating capacity.

"We feel this forecast is conservative. It contemplates provable load growth on the basis of continuation of present economic conditions. It predicts growth of all our present demands but does not allow for any single phenomenal load which might develop."

Hydro Possibilities Exhausted

All TVA's major dams will be in operation with the completion of the Watauga and South Holston projects, Clapp conceded. In fact, the agency now is concentrating on completing power installations at its existing hydro plants. Of 402,600 kw of new hydro capacity to be added on the system by March, 1951, all except 85,000 kw will be installed at plants already in operation.

TVA planning gives full consideration to the hydro plants being built on the Cumberland River in Tennessee and Kentucky by the Army Engineers, Clapp said. Under an agreement already worked out, TVA will market the power from these plants, which will have an initial installed capacity of 260,000 kw.

If Congress permits, the agency can start construction on the new steam

EDISON'S private office and study at West Orange, N. J., gets a dusting in preparation for its opening to the public on Feb 11 when it will be taken over by the Thomas Alva Edison Foundation. Edison used this room for 44 years, and in it created or perfected many of his inventions

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plant in July, 1948, Clapp added. "We already have discussed the question of equipment supply with the manufacturers and have estimated that we could put the first 125,000-kw unit into operation in 1951. But we have made no tentative contracts for equipment and will make none until Congress authorizes the project."

He pointed out that TVA already operates 11 steam generating plants. But these include several small plants acquired in the purchase of private utility systems of the area. Only comparable project is the 240,000 kw Watts Bar steam plant, which was built during the war on an emergency basis.

Of present TVA total capacity of 2,538,000 kw only some 450,000 kw is installed in steam plants. Even with installation of all three units in the proposed steam plant, the proportion of steam to hydro capacity in the system would be even smaller by 1953 because of planned expansion of the hydro plants.

Except during "poor water years," Clapp said, TVA has never operated its steam plants at full capacity. In most recent years, steam output accounted for from 3 to 5 percent of the system's energy production, though it amounted to approximately 15 percent in fiscal 1947, which he described as a "freakish" water year. The proposed new plant would fill no more important role in carrying TVA's basic loads, he insisted.

Clapp foresaw no other source of additional capacity for the TVA system other than from its own plants.

"Until the last three months of fiscal 1947," he said, "the system output through interchanges with neighboring power systems always exceeded the input. Though we do not know the details of expansion programs of our neighbor systems, it would be impractical to expect that they contemplated carrying a part of our load."

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Record Set in Peak Loads

The aggregate of major electric utility system peak loads for Nov 1947 was 46,294,000 kw, the Federal Power Commission has reported. This was the highest total of record, exceeding the previous maximum of 44,340,580 kw set in the preceding month. The November peak loads were about 4,355,000 kw or 10.4 percent higher than Nov 1946 and 1,953,000 kw above the Oct 1947 total. Corresponding energy requirements for November were 21,519,000,000 kwhr, 10.2 percent above those for Nov 1946. October energy requirements were 22,027,215,000 kwhr.

AEC Report Throws Light on Future of Atomic Power

All Uranium and Thorium in World Now Available for Atomic Fuel—At Least 10 Years Will Be Required to Make Nuclear Power Economically Significant—Uranium Imports Stockpiled

DIMENSIONS of the problem of obtaining atomic power in commercial amounts were distinctly more clear this week.

Although the whole picture remains shrouded in secrecy, the Atomic Energy Commission's semi-annual report threw considerable new light on the problem. It showed:

1. All uranium and thorium in the world is available for atomic fuel.
2. AEC estimates that 10 years may be added to the span of time which will be required to make atomic power economically significant.

These strongly-implied conclusions mean that atomic fission can someday provide a substantial part of the world's power needs. No longer is the supply of atomic power limited by the tiny fraction of uranium which occurs naturally in the readily fissionable form, U-235. But there's an inescapable time interval before atomic power can become significant. And this week's AEC report extends that time.

The plentiful forms of uranium and thorium can be made usable only by a slow "breeding" process under which it will take a long time to build up large stocks of atomic fuel. So AEC now estimates that it will take about ten years to lick the technical problems of building economic power-breeder reactors and that it will take another ten years to accumulate a sufficient stock of atomic fuel to fill a major part of the country's power needs.

The "breeding" problem, which lies at the heart of the question of sources of atomic power is discussed openly for the first time in this week's report. Until now the very word has had a secret stamp on it. The breeding problem is this:

Uranium and thorium themselves are fairly plentiful—comparable to lead or zinc. But only one part in 140 of natural uranium is of the kind, U-235, which can sustain a chain reaction in a bomb or pile—which is sufficiently "combustible" to keep a pile going.

The plentiful kind of uranium, U-238, can be transmuted into an easily fissionable form, plutonium, by exposure to an atomic chain reaction. Similarly, thorium can be transmuted into another fissionable form of uranium, U-233. But to effect either transmutation, you have to use up U-235.

The question is—when you consume a certain amount of U-235 in a transmutation process, do you manufacture more new fuel in the process than you used in keeping the process going? Or do you get less?

Theory indicates it should be possible to get out a little more than is put in, but it's been generally assumed that existing processes get out less. Now the AEC indicates that it can see its way to building a type of reactor—a breeder—which will produce more than it consumes.

Build Up Comes Gradually

Thus, by using the extra fuel production of one reactor to contribute to the fueling of another, which in turn will supply still others, it should be possible gradually to build up—from an initial stock of U-235—a chain of reactors using U-238 and thorium.

Also revealed for the first time in AEC's new report is the fact that present atom work is almost entirely based on imported uranium ores. Imports are now sufficient to supply the Oak Ridge and Hanford production plants and also to accumulate a stockpile against any interruption of foreign supplies. War-time facilities for extracting uranium from tailings of domestic vanadium were abandoned.

Rates Raised 30%

The Salt River Valley Water Users' Association, Phoenix, Ariz., has increased pumping power rates. The new rates, which are effective after February readings, will be about 30 percent higher. The increase will not be levied on general light and domestic users served directly. It will apply to sales for individual farm pump operations and to pump irrigation districts. The increase was ordered because of the higher cost of purchased power, material, and labor.

3,000 Engineers Attend Winter Meeting of AIEE at Pittsburgh

Walker Cisler Suggests Electric Power Industry Advisory Group to Assure Nation of Adequate Power In Peace and War—Operating Men Discuss Frequency and Voltage Cuts

NEARLY 3,000 members of the American Institute of Electrical Engineers jammed Pittsburgh's limited hotel facilities last week. They supplied the proof that AIEE need not hold its winter meeting in New York to make it a success from the standpoint of attendance.

The highly technical five-day meeting was as varied as always. Engineers in the utility industry found many sessions of especial interest to them. The papers delivered at these sessions and the pertinent discussion will be abstracted in the Feb 14 issue of ELECTRICAL WORLD.

An important feature of the meeting was Walker Cisler's presentation of concrete suggestions for an Electric Power Industry Advisory Group. The Detroit Edison vice-president proposed that this group function with the U. S. Department of National Defense. The purpose would be to assure "an adequate supply of electric power . . . to both a healthy peace-time economy and . . . a national defense program.

Functions of Group Outlined

Cisler outlined the functions of such an advisory group as keeping informed on power load and capabilities, new loads and capacities to supply them, and as planning from a national security standpoint. The group would also watch manufacturing capacity in our own and in all foreign countries.

He set reserve capacity at 15 percent of load demands for large interconnected systems. Isolated systems would require larger reserves. This reserve capacity would be an immediately available cushion at the outbreak of hostilities. War-time experience overseas, he explained, demonstrated the need for building added facilities into existing systems rather than superimposing some scheme of standby facilities owned by the government.

In war-torn areas, Cisler, who studied utility systems in Germany after the war, declared the only practical way to restore electrical service was to restore existing integrated peace-time systems.

The time to build interconnections, he said, is in peace-time. In the last war, we had to build them when materials and manpower were vitally needed for war production.

Recent experiences in reducing load by reducing frequency or voltage or both were detailed by several operating men. C. B. Kelly, United Light & Railways Service Co, found by trial that the Kansas City system, isolated, could drop 0.31 v per one-tenth cycle. In general, he felt safe in reducing frequency by as much as 1½ cycles. He quoted 1 percent load reduction for 1 percent voltage reduction up to 5 percent.

New England tests, reported by D. P. Reed of New England Power Co, showed 2.44 percent reduced load after voltage had been cut 2½ percent, with feeder voltage regulators blocked insofar as possible. H. W. Phillips, Pennsylvania-New Jersey Interconnection, reported similar figures for voltage reduction, namely 1 percent for 1 percent. However, he assigned 2½ to 3 percent load reduction for 1 percent frequency lowering.

J. E. McCormack, Consolidated Edison Co of New York, related his experience in segregating a large block of Brooklyn load but noted that his studies led him to rely not at all on frequency reduction. Voltage reduction he considers only as a last resort for metropolitan areas.

The theme of Dr Joseph Slepian, Edison medalist, "Mathematician, Scientist, and Engineer," would seem to apply to him as much as to any other. He defined a scientist as "one whose interests and activities lie in determining what is the actual order of things in the physical world." The engineer he holds to be "one whose activities lie in devising, designing, constructing or controlling the operation of physical devices, machines, technical processes or services which have practical utility."

He commented that mathematicians and scientists made great contributions to the "utility" of ballistics, aeronautics, submarine detection, radar, the proximity fuse, the atom bomb, and numerous other "engineering" activi-

DR JOSEPH SLEPIAN, left, Westinghouse Electric Corp, accepts the 1947 Edison Medal from Blake D. Hull, president of the AIEE

ties. These were, he pointed out, temporary adoptions by mathematicians and scientists of engineering functions. These "transient" engineers, however, had best soon return to their natural fields lest our country suffer from lack of mathematicians and scientists who fill a definite need in the advancement of our civilization.

Recent study of the "latticed" nature of ionized layers above the earth's surface was detailed by Dr Jack T. Wilson, Allis-Chalmers Manufacturing Co. Changes in the amount of solar radiation affect not only radio frequency broadcasting but have a definite effect on moisture precipitation. Solar radiation in the range of 50 to 200 megacycles is received directly on the earth. Magnetic disturbances affect power systems also. Atmospheric potentials of 40 to 60 v per meter are common in northern latitudes of the U. S. and Canada. Induced currents of as much as 40 amp of unidirectional current have been found in transformer neutrals.

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Co-op Asks Arizona Board to Void Utility Lines Sale

The sale for $104,000 of Eloy Light & Power Co lines to Electrical District No. 5, Pinal County, Ariz., (EW, Dec 27, Page 6) has been challenged by Trico Electric Co-operative of Eloy, It requests the Arizona Corporation Commission to void the sale.

The Trico complaint charges the Commission was without authority to approve the sale since a suit is now pending before the Arizona Supreme Court concerning an option held by the co-op to purchase all of the utility company's properties.

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Day-Time Work Resumed

St. Johnsbury, Vt., industries resumed day-time operations recently (Jan 19). The power shortage has restricted work to nights since Dec 1. Increased flow in the Connecticut River and a seasonal decline in power load have ended the shortage. The town is served by the Central Vermont Public Service Corp.

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Utilities Subject to Tax

The Connecticut Supreme Court of Errors has sustained the finding that the Connecticut Light & Power Co and other utilities are rightfully subject to the Connecticut sales and use tax.

Congress Will Take Another Look at Appropriation Pleas

AEC's Budget Request for More Funds Delayed Indefinitely —House Committee Cuts Funds for FPC Which Will Still Get More Than Last Year—SEC's Personnel Policies Scored

CONGRESS WILL TAKE another look—a long one—at appropriation requests of the Atomic Energy Commission and three other federal agencies.

That decision was announced last week (Jan 30) by the House Appropriations Committee in reporting on annual funds for the independent offices. Thus action was delayed indefinitely on AEC's budget request for $625,000,000 in new appropriations, plus contract authorizations totalling $200,000,000 for the remainder of fiscal 1948 and $400,000,000 for fiscal 1949.

Acting upon other items in the annual Independent Offices Appropriation Bill, the Committee trimmed some $170,000 each from the budget estimates of the Federal Power Commission and the Securities & Exchange Commission.

A separate bill, or bills, will provide appropriations for AEC, the Maritime Commission, Veterans' Administration, and War Assets Administration, the Committee ruled. Its report asserted that "much can be accomplished in connection with the consideration of these important activities if more time is available for further investigation and study." Formal hearings will be deferred until "later in the year," the Committee said.

This announcement apparently reflected continuation of the Committee's displeasure with what it last year termed the "vagueness" of AEC's spending plans. At that time, the group slashed the Commission's budgetary request with an injunction to return to Congress when, and if, it needed additional funds during fiscal 1948.

Bulk of the Committee's slash of FPC's budget resulted from reduction of estimated expenditures for salaries and expenses from $3,820,000 to $3,649,550. The latter amount allowed an increase of $59,550—all of it for routine promotions of present employees—over the sum approved by Congress for the same purpose last year. The Committee also granted a requested increase of $73,500—to a total of $340,000—for FPC's flood control surveys. A total of $4,049,550 was allotted for the agency.

SEC took a verbal spanking, along with the reduction of its budget from an estimated $6,000,000 to $5,826,140. Denied was SEC's request for funds to hire 28 new employees and to put part-time workers on full-time.

4-H BETTER METHODS ELECTRICAL PROJECT gets a boost at meeting of Tri-County Electrical Associates at Durham, N. H. John Pierce, left, Strafford County 4-H Club member; John W. Hopley, Tri-County Associates agriculture chairman; Guy W. Mann, County 4-H agent; W. A. Dodwell, rural service director, Public Service Co of New Hampshire

Krug Says 10,000,000 Kw Needed in Next 5 Years

Report to President Points Out Growing Power Demand, Doubts Electric Manufacturers' Capacity

U. S. Industry and Agriculture, bearing the brunt of expanding domestic demands as well as new European aid responsibilities, probably will require the addition of 10,000,000 kw of new electric generating capacity in the "next four to five years."

There is "grave doubt" that electrical manufacturers can turn out sufficient equipment to provide this new capacity on time. But any curtailment of "federal programs" to build and complete new hydroelectric generating plants will further cloud the chances of increasing the nation's productive capacity.

This seemingly paradoxical conclusion highlighted the power sections of the annual report presented by Interior Secretary Julius A. Krug to the President this week (Feb 3).

The report predicted that energy consumption is "likely" to rise from 275,000,000,000 kwhr in 1946 to "about 376,000,000,000 kwhr in 1952." This would require expansion of the nation's generating capacity "from an existing 57,000,000 kw to about 67,000,000 kw in the next four to five years," Krug declared.

No Gain Just Replacement

Production by electrical manufacturers of "generators, water wheels, transformers, and the like" may not do "much more than keep up with the demand for replacement of equipment and a relatively small amount of machinery for new installations," the secretary found.

Then, keynoting the rest of his comments on power, Krug warned that "the curtailment of federal programs for . . . dams for the by-product generation of electric power provides another element of doubt and concern."

"Wherever possible," he continued, "hydro development should be substituted for generation which consumes expendable resources, particularly petroleum and natural gas." Further, unless additional hydro capacity is provided as rapidly as equipment can be produced, output of materials necessary to the expansion of the nation's industrial economy—"such as aluminum, magnesium, plutonium, phosphorus, ferroalloys and a great many others"—will be "seriously . . . bottlenecked."

Krug also urged the further construction of federal transmission lines, particularly to interconnect "various government plants through load centers" and connecting with existing utility systems. Such lines, he asserted, "cannot in any sense be considered as duplicating lines of existing systems." Instead, they will serve the "entirely new function of tying together" area power resources and "play an important part" in making energy available for national defense and "other federal needs."

Krug Boosts Goal

Interior Secretary J. A. Krug raised the sights of the federal power expansion program again this week (Feb 4).

Krug revealed changes in the Reclamation Bureau's six-year program which boost it from last year's 2,269,600 kw to 2,948,-100 kw. They add one year to the contemplated completion date, making it June 30, 1953.

Outstanding in the new program revealed by Krug is the Delta steam plant for California's Central Valley project. Never specifically authorized by Congress, this plant has been fought about repeatedly. It would be located in the San Francisco Bay area. Krug's announcement showed that Reclamation wants to install 80,000 kw each in 1951, 1952, and 1953.

Pacific Gas & Electric Co Applies for Kings R Site

Pacific Gas & Electric Co has made application to the Federal Power Commission for permission to build a $60,-000,000 hydroelectric power development on the North Fork of the Kings River above the Pine Flat reservoir site.

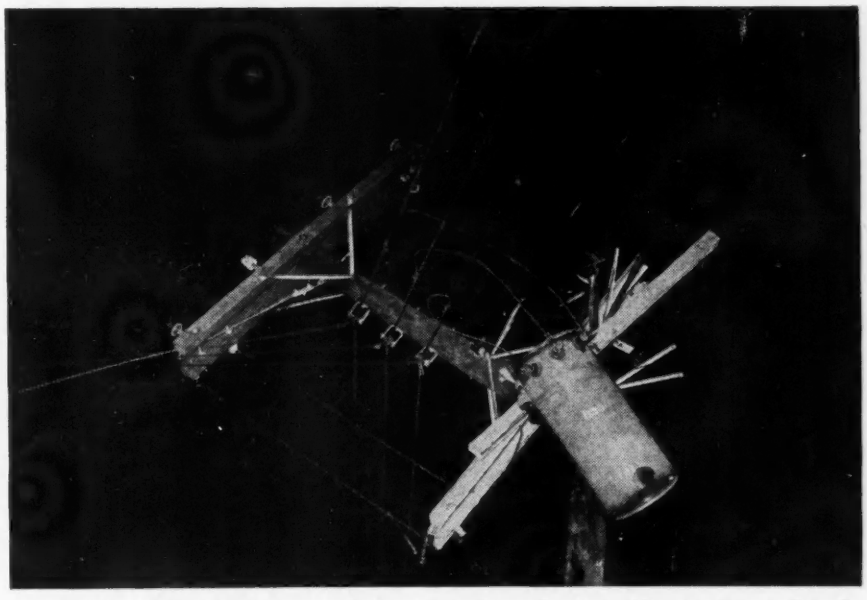
The company will start construction as soon as permission may be obtained, and a satisfactory agreement with the Kings River Water Association users is reached.

H. H. Courtright, San Joaquin power division manager for PG&E, said that the proposed development will include three new power plants and the enlargement of the company's existing Balch plant, providing an additional 325,000 hp of generating capacity. Two large storage reservoirs, Wishon and Helm, are planned for the project, with a total capacity of about 230,000 acre ft.

"The company," Courtright said, "intends immediately to enter into negotiations with Kings River Water Association to arrive at an agreement upon the amount of money to be paid by the company for the privilege of storing and later releasing the flow of the North Fork of Kings River and to arrive at a satisfactory agreement on water rights.

"The company's contribution will greatly reduce the burden on the water users who are required to meet the financial obligation Congress has placed on them for irrigation benefits from Pine Flat reservoir."

Kings River Water Association Presi-



NOT AN AIRPLANE but an ambulance hit this pole of the Electric Power Board of Chattanooga. A 5-kva transformer was jarred off the pole interrupting secondary service. The top of the pole with the 4-kv lines was held on the stub by catching on the cross-arm bolt

dent Philip A. Gordon, however, answered PG&E's announcement with a flat statement that irrigationists on the river are opposed to upstream hydroelectric power development by the utility.

"We want sole control of the river and, as owners of its water, always have had in mind our own power development so that all the benefits can be applied to irrigation," he said.

Gordon also is head of the Fresno Irrigation District, trustee for the other river interests in an application to FPC for a preliminary permit leading to development of the hydroelectric resources of the river. A hearing on the application, scheduled for Jan. 26, has been postponed for at least 60 days at the request of the district.

The Kings River group is also against power development by the Bureau of Reclamation, Gordon said.

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Judge Invalidates Loan Permit to Alabama Co-op

The recent ruling of State Finance Director Bill Drinkard of Alabama approving a $5,516,600 REA loan to the Alabama Electric Cooperative, Inc., has been held to be "invalid" by Montgomery Circuit Judge Walter B. Jones. The court ordered an earlier denial decree reinstated. An appeal will be made by the state to the Alabama Supreme Court.

At the same time the court granted a writ of prohibition sought by the Alabama Power Co to restrain the finance director from holding a rehearing in the case.

Developments in the case, which resulted in the court decision, came when Drinkard over-ruled the order of John P. Shaffer, local finance division chief, and substituted one of his own approving the loan.

The REA co-operative had applied for a loan to finance construction of a steam plant at Gantt, Ala., and other facilities. Shaffer disapproved the loan after hearings on the petition. Drinkard later over-ruled him. Alabama Power then instituted legal proceedings claiming that it had ample facilities to supply power to the area.

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Again a Consultant

Arnold H. Hirsch has resumed practice as a public utility consultant with offices in the Albee Building, Washington. During the war, Hirsch was public utilities specialist and chief of the Public Utilities Branch, Office of Price Administration.

CVP Power Revenues Were $3,372,217.81 in 1947

Sales of Central Valley Project power, generated at Shasta Dam, plus rent from the Oroville transmission line, brought in revenues of $3,372,217.81 during 1947. Most of this money will be used to repay construction costs of the project.

Operating costs for the year are not yet available. They are computed on a fiscal year basis. For the fiscal year ended June 30, 1947, they were $526,-181.53 or about 16 percent of the revenues returned during 1947. Operating costs for fiscal 1948 will be higher as a result of wage increases and expanded operations.

In making the announcement, Regional Director Richard L. Boke, Bureau of Reclamation, called the earnings "pretty good for an undergraduate power system." He was referring to the fact that Keswick hydro plant and the Delta steam plant are not yet in operation. Moreover, Shasta has only two of its five generators installed.

The bulk of CVP power is currently sold at Shasta substation to the Pacific Gas & Electric Co under a war-time contract which will expire on Dec. 31. Other sales of power during 1947 were to construction contractors working on Shasta and Keswick Dams, to the Bureau of Mines for use in operating its Shasta Pilot Plant, and to the project itself for operating pump lifts on the Contra Costa Canal.

During 1947, 1,191,082,351 kwhr of power were sold at an average price of 2.77 mills per kwhr. This was 265,510,-069 kwhr less than the total energy sold in 1946. The decrease was due to the conservation of water last spring in order to insure an adequate irrigation supply during the summer.

Other revenues brought CVP $242,852.

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Moves Headquarters

The Citizens Utility Co has moved headquarters from Kingman to Nogales, Ariz. The company, which built the first power line into Arizona from Hoover Dam to serve Kingman, also serves Miami and Nogales.

MEETINGS

Electric League of Western Pennsylvania—Planned Lighting Exposition and Conference, William Penn Hotel, Pittsburgh, March 1-4. W. B. Montague, publicity chairman, 306 4th Ave, Pittsburgh 30, Pa.

National Association of Purchasing Agents—Public Utility Buyers' Group, Mid-Winter Conference, Roosevelt Hotel, New Orleans, March 8-9. Charles F. Wilson, chairman, Lone Star Gas Co, Dallas 1, Tex.

Engineers Club of Philadelphia—Engineering Progress Show, co-sponsored by junior members and the Franklin Institute at the Institute, May 11-16. Wilmot E. Fleming, manager, 1317 Spruce St, Philadelphia 7, Pa.

Public Utilities Advertising Association—Annual Meeting, Hotel Cleveland, Cleveland, Ohio, May 27-28. Harold S. Metcalfe, president, West Penn Power Co, Pittsburgh 30, Pa.

PREVIOUSLY LISTED

Edison Electric Institute—Transmission and Distribution Committee, New Jefferson Hotel, St. Louis, February 9-10; Prime Movers Committee, Edgewater Beach Hotel, Chicago, February 9-10; Meter and Service Committee, Joint Meeting with the AEIC Committee on Metering and Service Methods, Biltmore Hotel, Oklahoma City, Okla., February 9-11; Electrical Equipment Committee, Netherland Plaza Hotel, Cincinnati, February 12-13; Accident Prevention Committee, Roosevelt Hotel, Pittsburgh, February 16-17; Annual Sales Conference, Edgewater Beach Hotel, Chicago, April 6-8; Annual Convention, Hotel Traymore, Atlantic City, June 1-3.

Pennsylvania Electric Association—Prime Movers Committee, Hotel Alexander, Hagerstown, Md., February 19-20; Electrical Equipment Committee, Castleton Hotel, New Castle, Pa., February 19-20; Systems Operation Committee, Abraham Lincoln Hotel, Reading, Pa., February 19-20; Transmission and Distribution Committee, Castleton Hotel, New Castle, Pa., February 26-27.

National Adequate Wiring Bureau—Annual Conference, Stevens Hotel, Chicago, February 22-26.

American Society of Mechanical Engineers—Spring Meeting, St. Charles Hotel, New Orleans, March 1-4.

Oklahoma Utilities Association—Annual Convention, Biltmore Hotel, Oklahoma City, Okla., March 11-12.

National Electrical Manufacurers Association—Winter Convention, Edgewater Beach Hotel, Chicago, March 14-18.

Canadian Electrical Association—Western Conference, Palliser Hotel, Calgary, March 15-17.

Institute of Radio Engineers—Annual Convention, Hotel Commodore, and Radio Engineering Show, Grand Central Palace, New York, March 22-25.

American Institute of Electrical Engineers—Conference on Electron Tubes for Instrumentation and Industrial Use, sponsored by the Joint Subcommittee on Electronic Instruments, Benjamin Franklin Hotel, Philadelphia, March 29-31.

Southeastern Electric Exchange—Accounting Conference, Henry Grady Hotel, Atlanta, April 1-2; Annual Meeting, Boca Raton, Fla., April 8-10; Spring Conference, Engineering and Operating Section, Tampa Terrace Hotel, Tampa, Fla., May 6-7.

National Association of Corrosion Engineers—Annual Conference and Exhibition, Jefferson Hotel, St. Louis, April 5-8.

Midwest Power Conference—Sheraton Hotel, Chicago, April 7-9.

Northwest Electric Light & Power Association—Engineering and Operation Section, Davenport Hotel, Spokane, April 14-16; Accounting and Business Practice Section, Davenport Hotel, Spokane, April 17-18; Annual Business Meeting, Empress Hotel, Victoria, B. C., May 10; Business Development Section, Empress Hotel, Victoria, B. C., May 10-12.

Electrochemical Society—Spring Congress, Deshler-Wallick Hotel, Columbus, Ohio, April 14-17.

Missouri Association of Public Utilities—Annual Convention, Hotel Jefferson, St. Louis, April 28-30.

Arizona Supreme Court Blocks FPC Rate Survey

Arizona's efforts to instigate a federally conducted investigation into rates charged by the state's utilities have been blocked by a Supreme Court ruling declaring unconstitutional and void a 1945 law setting up $50,000 for the project. The state high court's unanimous decision brought to an end almost three years of legal skirmishes involving the survey advocated by Gov Sidney P. Osborn.

In its judgment, the court said:

"In the instant case it is not that we see anything unusual or illegal in a state agency's utilizing the services of the Federal Power Commission on a rate survey. But the Commission must be free to seek assistance or co-operation as its judgment dictates. There can be no compulsion by the legislature to force upon the Commission a particular mode of accomplishing its constitutional duties."

The ruling held that the legislative act which provided for the survey infringed on the rights of the Arizona Corporation Commission and, in effect, decreased its powers.

Informed sources report that the proposed survey by FPC was violently opposed by all Arizona utility firms. Such sources brand moves by the two-man majority bloc of the Commission to conduct its own survey a "smoke screen behind which the utilities would conduct the study."

Governor Osborn has said he would not be satisfied with such a survey in place of the now-abandoned federal checkup. "Such a survey would amount to a survey by the power companies," the Governor said.

Yale McFate, Commission minority member and an advocate of using federal specialists to conduct a rate survey, held out hope the Supreme Court ruling does not entirely eliminate prospects of obtaining federal aid. He contends the ruling indicates the Commission could use FPC men but that the legislature could not specify that they "must" be used.

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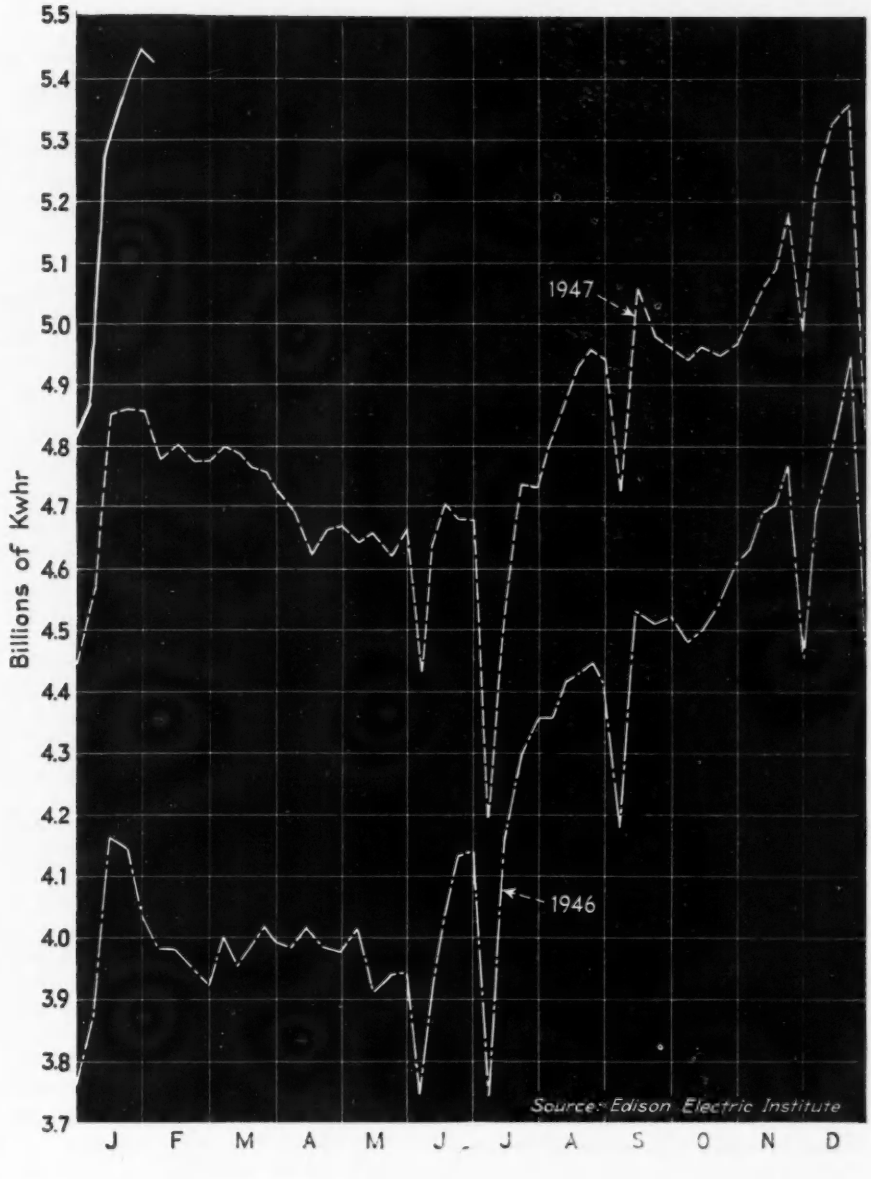
Power Use Curtailed 15%

Shortage of water in northern storage basins has made necessary a reduction of 15 percent in electricity supplied to consumers in four districts served by the Ontario Hydro-Electric Power Commission. The districts are Abitibi, Timiskaming, Sudbury, and Nipissing. Power will be allocated on a basis of 85 percent of the consumption of Nov, 1947.



Has Output Trend Started Downward?

The downward trend in energy output, eagerly awaited by America's electric utilities, may have started in the week ended Jan 31. From its record high of 5,436,430,000 kwhr for the week ended Jan 24, the output of central stations dropped to 5,429 202,000 kwhr. This was still 13.6 percent over the 4,-777,207,000 kwhr of the corresponding week a year previous. A study of the output chart above shows that a decline in output at this time is usually the beginning of the seasonal decline which reaches its low point the first week in July.

The weekly report of the Edison Electric Institute showed that the Southern States had the greatest increase over the corresponding week in 1947, an increase of 17.1 percent. The Pacific Coast section with its tight capacity situation was up 15.9 percent. The West Central group followed with a 14.5 percent increase. The smallest increase was shown by the Central Industrial area, only 11.1 percent.

Weekly Output, Millions Kwhr

1948		1947		1946	
Jan. 31	5,429	Feb. 1	4,777	Feb. 2	3 983
Jan. 24	5,436	Jan. 25	4,856	Jan. 26	4,034
Jan. 17	5,370	Jan. 18	4,857	Jan. 19	4,145
Jan. 10	5,278	Jan. 11	4,853	Jan. 12	4,163
Jan. 3	4,868	Jan. 4	4,574	Jan. 5	3,865
1947		1946		1945	
Dec. 27	4,830	Dec. 28	4,442	Dec. 29	3,759
Dec. 20	5,358	Dec. 21	4,940	Dec. 22	4,239
Dec. 13	5,327	Dec. 14	4,778	Dec. 15	4,154

Percent Change from Previous Year

	Jan. 31	Jan. 24	Jan. 17
New England	+13.9	+11.7	+11.7
Mid-Atlantic	+12.1	+ 9.4	+ 7.8
Central Industrial	+11.1	+11.5	+11.8
West Central	+14.5	+13.1	+11.1
Southern States	+17.1	+13.6	+12.3
Rocky Mountain	+11.2	+10.3	+ 8.7
Pacific Coast	+15.9	+13.4	+ 8.7
Total United States.	+13.6	+11.9	+10.6

Ohio Utility Construction To Cost about $29,200,000

Generating Capacity of Columbus & Southern Ohio Electric Co Will Be Increased by over 52 Percent

In increasing generating capacity by more than 52 percent by the construction of a new station and making additions to existing plants and strengthening transmission facilities, Columbus & Southern Ohio Electric Co. is currently expending $29,200,000. The first component in the overall plan, construction of a generating station on Hamley Run, adjacent to the Hocking River, was begun late in December. The new $15,000,000 plant was designed by and will be constructed under the supervision of Ebasco Services, Inc.

The first unit of the new station will consist of one 40,000-kw turbo-generator and a boiler, 1,500 psi, 950 deg F, producing 425,000 pounds of steam per hour. It is scheduled for service in September, 1949. A second generator-boiler unit, of the same size and capacity, is planned to go into service during August, 1950. Ultimately a third unit, and possibly a fourth, will be added.

Work also will start soon on construction of substations and 138-kv transmission lines connecting the new plant and the company's Picway generating station, and substations located at Chillicothe and Athens. Construction of new high voltage transmission substations west, north and east of Columbus, and of 138-kv lines from the company's Picway and Walnut plants to these substations will also start before the summer. These transmission additions are expected to cost over $7,000,000.

While construction of the new plant is in progress, work will also proceed on the enlargement of the company's other generating stations. At the Walnut plant, a new boiler, 1,400 psi, 900 deg F, producing 225,000 pounds of steam per hour, is expected to be ready for service before spring. This addition will cost approximately $1,700,000.

At the Picway station a new 30,000 kw turbo-generator and a boiler, 975 psi, 900 deg F, producing 325,000 pounds of steam per hour, are currently being installed. Work was started in December, 1946, and is expected to be completed in August. The cost, including additions to the turbine and boiler rooms, will approximate $5,000,000.

Changes in Capacity Reported to Federal Power Commission

Plant Additions During November

Utility	Plant	Fuel	Capacity (Kw)
Public Service Co of New Hampshire	Resistance	S	30,000
Metropolitan Water District	Winsor, Mass.	H	1,200
New Bedford Gas & Edison Light Co	Cannon Street	S	20,000
Yonkers Electric Light & Power Co	Glenwood	S	20,000
Central Illinois Electric & Gas Co	Rockford	S	20,000
Village of Bellaire	Bellaire, Mich.	IC	150
Wisconsin Hydro-Electric Co	Chetek	IC	1,000
Interstate Power Co of Wisconsin	Prairie Du Chien	IC	2,000
Aitkin Light & Water Commission	Aitkin, Minn.	IC	865
Jackson Electric Light Dept	Jackson, Minn.	S	2,000
Grand Junction Municipal Light Dept	Grand Junction, Iowa	IC	275
Harrisonville Water & Light Dept	Harrisonville, Mo.	IC	690
Otter Tail Power Co	Enderlin, N. D.	IC	400
Plankinton Light & Power Dept	Plankinton, S. D.	IC	200
City of Sidney	Sidney, Neb.	IC	1,125
Harrison Light, Water & Power Dept	Harrison, Neb.	IC	40
South Carolina Power Co	Hagood	S	22,500
Spur Municipal Light & Power Dept	Spur, Tex.	IC	250
Mountain States Power Co	Kalispell, Mont.	IC	1,600
Carlin Municipal Light Co	Carlin, Nev.	IC	275
Los Angeles Dept Water & Power	Harbor	S	65,000

Plant Retirement During November

Versailles Board Public Affairs	Versailles, Ohio	S	3,368
Indiana & Michigan Electric Co	Marion, Ind.	S	6,250
Moose Lake Water & Light Commission	Moose Lake, Minn.	IC	88
Moultrie Water & Light Dept	Moultrie, Ga.	IC	460
Berea College Heat & Power Dept	Berea, Ky.	S	300
Montana-Dakota Utilities Co	Clearmont, Wyo.	IC	80

H—Hydro, IC—Internal Combustion, S—Steam
United States capacity as of December 1—Steam, 35,697,932 kw; Hydro, 14,863,222 kw; Internal Combustion, 1,262,768 kw; Total, 51,823,922 kw.

Sets Safety Record

During 1947 Georgia Power Co chalked up its best safety record in history. With an average of 6,420 workers there were only 44 on-the-job injuries, or 2.72 injuries per million hours worked.

PLANS for the annual convention of the Public Utilities Advertising Association were made at a recent meeting of the officers and directors at Atlanta. Left to right, seated, W. B. Hewson, Brooklyn Union Gas Co; Mead Schenck, Interstate Power Co; Ray W. Garvin, Monongahela Power Co; PUAA president, H. S. Metcalfe, West Penn Power Co; C. J. Allen, Connecticut Light & Power Co; and E. N. Pope, Carolina Power & Light Co. Standing, J. E. Humphreys, Ohio Fuel Gas Co; Paul L. Penfield, Detroit Edison Co; Arthur P. Kelly, Rochester Gas & Electric Corp; W. S. Johnson, Wisconsin Power & Light Co; Kenneth J. Haines, Northern Indiana Public Service Co; Herbert Briggs, Duquesne Light Co; F. I. Fairman, Kentucky Utilities Co; Robert R. Gros, Pacific Gas & Electric Co; and Walter G. Heren, Union Electric Co of Missouri

MANUFACTURERS & MARKETS

General Electric Institutes Tube Replacement Policy

A new policy which calls for tube-for-tube replacement on defective receiving tubes returned within the one-year warranty period has been instituted by the tube division of General Electric Co's electronics department.

The new policy change, which supersedes a "discount in lieu of replacement" method, was announced in a statement to Ken-Rad and GE receiving tube distributors by Russell W. Metzner, sales manager of replacement tube.

Under the new policy, replacements will be based on field reports made by company representatives who will personally examine and list all tubes subject to the warranty. According to Mr. Metzner, the new policy is expected to provide "not only more equitable adjustment but a constant check which will enable the manufacturing and engineering sections to maintain or even improve standard of quality and performance."

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"Keep Minds on Customer", Electrical Women Advised

Advising them that they could be one of the most powerful groups of people in the merchandising world, if they put the customer before the product, Vernon E. Vining, merchandising consultant for Westinghouse Electric Appliance Division, told members of the Electrical Women's Round Table at their January meeting, the most important factor in merchandising was to keep their minds on the customer.

Mr. Vining emphasized one of the most important factors in merchandising was to be of service to people and to get fun out of doing the job. In this way, he told the women of the Round Table, they would be successful for they would have the secret of success and happiness in affecting the lives of other people and bettering the American way of life.

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10,607 Attend FM Meetings

A total attendance of 10,607 for the General Electric traveling FM radio workshop at 30 meetings in 24 states and the District of Columbia, has been reported at Electronics Park. Syracuse, N. Y., by R. D. Payne, who was in charge of the tour.

SALE of the Coolerator Co, Duluth, Minn., to the Gibson Refrigerator Co, Greenville, Mich., was completed at this meeting of the executives of the companies. Seated are L. W. Hamper, left, executive vice-president of Gibson; John H. Ganzer, president of Coolerator; and C. J. Gibson, president of Gibson

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Buys Manufacturing Rights For Liquid Processing

Bowser, Inc, Fort Wayne, Ind., has purchased outright the entire liquid processing division of Buckeye Laboratories Corp of Cleveland, Ohio, W. Marshall Dale, Bowser executive vice-president, has announced. The transaction included purchase of the manufacturing equipment used by Buckeye. Production will begin at the Bowser plant as soon as the machinery can be moved and installed.

Robert H. Webster, formerly general manager of Buckeye Laboratories, has joined the Bowser organization in Fort Wayne as sales manager of the new liquid processing division.

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Vote 2-for-1 Stock Split

Stockholders of Anaconda Wire & Cable Co have approved an increase in the authorized capital stock from 1,000,000 to 2,000,000 shares. The company plans to split the outstanding 422,470 shares of capital stock without par value into 844,940 shares without par value.

Gibson Refrigerator Buys Coolerator Co of Duluth

The Gibson Refrigerator Co, Greenville, Mich., has purchased the Coolerator Co, Duluth, Minn. The purchase price was announced as over $2,000,000. Combined sales of the two organizations in 1947 were $34,500,000.

Gibson recently purchased two plants of the Murray Corp at Belding, Mich., eight miles from Greenville. And with ten other manufacturers, Gibson has taken over the Phoenix Iron Works, Phoenixville, Pa., and the Apollo Steel Works, Apollo, Pa. This will assure a continuous supply of suitable steel.

The Coolerator Co, producing electric refrigerators, farm freezers, retail display freezers, and ice refrigerators, will continue under its present management, headed by President John H. Ganzer.

Gibson will now have a capacity of 2,000 electric refrigerators a day. It also expects to produce electric ranges at twice its 1947 rate.

•

To Handle Universal Line

Graybar Electric Co will handle distribution of the entire Universal line of traffic appliances, manufactured by Landers, Frary & Clark, in all of Graybar's 98 branches. The move marks ex-

pansion of distribution of the traffic appliance line which Graybar has handled only in a limited number of territories. There will be no change in distribution of major appliances.

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Manufacturers Make Sales Assignments

Electrical manufacturing companies have recently made the following appointments to their sales staffs:

C. P. Clare & Co, Chicago, has appointed Marshank Sales Co, 672 South Lafayette Park Place, Los Angeles 5, Calif., as sales representative for California, Arizona and Nevada. The following changes in territorial assignments have also been announced: George F. Bury and H. O. Watson, Jr., will represent Clare in Ohio and Indiana with offices at 503 Hippodrome Bldg., Cleveland 14; C. J. Dorr, of the New York office, will cover western New York state; F. O. Stratton will handle western Pennsylvania from the Philadelphia office and E. H. Holt and W. F. Eich of the central district sales office in Chicago will serve customers in Michigan and Indiana.

Westinghouse Electric Supply Co has organized a South Atlantic district with headquarters at 40 South Calvert St, Baltimore, to supervise company operations in Maryland, Virginia and the District of Columbia. The territory formerly was covered by the Middle Atlantic district, with offices at Philadelphia. Company branches at Baltimore, Washington, Richmond, Norfolk and Roanoke are included in the new district, which will be headed by C. R. Lee, formerly manager of WESCO's branch at New Orleans, La.

Bright Light Reflector Co, Bridgeport, Conn., has appointed R. H. Jewell sales representative in the newly opened New York City sales office.

The Dampney Co of America, Hyde Park, Boston, Mass., has appointed W. T. Quimby, Springfield, Mass., formerly of New York, as special representative in the New York area for Apexior and Thur-Ma-Lox protective coatings.

Jenkins Bros has appointed Robert V. Salisbury manager of the New York branch, with headquarters in the company's New York offices at 80 White St.

Clough Brengle Co, Chicago, has appointed Alfred Crossley & Associates middle western representative. With headquarters at 549 West Randolph St, Chicago, the Crossley company will cover Michigan, Ohio, Indiana, Illinois, Iowa, Wisconsin and Minnesota.

Burlington Instrument Co, Burlington, Iowa, has made the following assignments: Corcoran-Hall Co, 842 Hamilton St, Allentown, Pa., entire state of Virginia with exception of Fairfax County; W. Clif McLoud & Co, 711 Colorado Bldg., Denver 2, Colo. states of Wyoming, Utah and Colorado; David Ross & Co, 108 Ninth St, San Francisco 3, Calif., state of California north of and including the counties of Monterey, Kings, Tulare and Inyo.

THE FRINK CORP, Long Island City, N. Y., has appointed G. R. Clover sales representative with headquarters at 629 New Center Bldg, Detroit 2, Mich.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Calif., San Francisco—Dpt. P. Wks., City Hall, preliminary studies Broadway tunnel through Russian Hill ridge providing 4-lane artery from Embarcadero to Van Ness Ave. **$5,000,000.** R. Wadsworth, City Hall, city engr. Ole Singstad, 15 Whitehall St., New York 4, N. Y., consult. engr.

Idaho, Bonners Ferry—Village, Village Hall, concrete gravity dam, appurtenant works for municipal hydro-electric sys. $257,500. Plans deposit $25. C. F. Griggs, Paulsen Bldg., Spokane, Wash., engr.

Ind., Columbus City—Bd. P. Wks., Mayor E. C. Binder, pres., Columbia City, municipal power plant. $150,000. Plans deposit $10. Laramore & Douglas, 327 S. La Salle St., Chicago, Ill., consult. engrs.

Ind., Indianapolis—State Procurement & Supply Div., O. F. Hesler, dir., 404 State Capitol, electrical distr. installations Deaf School. $100,000. Plans deposit $25. Bevington, Taggart & Fowler, Inc., 730 Indian Pythian Bldg., mechanical engr.

Iowa—Southern Iowa Electric Co-operative, Bloomfield, 300 mi. rural distr. lines, Davis Co. and vicinity. Over **$300,000.**

Mo., New Madrid—City, voted $150,000 bonds, municipal light and power plant, incl. equip., appurtenances, auxiliaries, etc.

North Dakota—Burke Divide Electric Co-operative, Crosby, 147 mi. rural distr. lines and completing previously approved construction, Burke Co. **$350,000.**

Oklahoma — Southwest Rural Electric Assoc., Tipton, 280 mi. rural distr. line and completing previously approved construction, Tillman Co. **$500,000.**

Pennsylvania—Somerset Rural Electric Co-operative, Crosby, 147 mi. rural distr. line and sys. imprvs., Somerset Co. **$200,000.**

South Dakota—Cam-Wal Electric Corp., Selby, 176 mi. rural distr. lines, Walworth Co. **$165,000.** Bannister Eng. Co., 1549 University Ave., St. Paul, Minn., consult. engr.

Tenn., Knoxville — Tennessee Valley Authority, New Sprankle Bldg., Knoxville, steam generating plant, New Johnsville. **$54,000,000.**

Washington—Bureau Reclamation Dpt. Interior Building 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Odair, 11 manually-gang-operated, outdoor, disconnecting switches; three outdoor, wound-type current transformers for the 230 kv. Grand Coulee switchyards, Columbia Basin Proj., Spec. 2101.

Low Bidders & Contracts Awarded

Arkansas—U. S. Eng., 300 Broadway, Little Rock, Jan. 19, powerhouse and dam, etc. at Norfolk Dam, Proj. W-030-50-eng-48-55, from Ditmars-Dickermann-Pickens Constr. Co., Pyramid Bldg., Little Rock. **$370,000.** Est. $375,565. Proposed work published Dec. 20, p. 116.

Idaho—Bureau Reclamation, Dpt. Interior, Anderson Dam, Jan. 6, completing dam and power plant, Anderson Ranch Dam, Boise Project, south fork of Boise-River, Spec. 2053, from J. A. Terteling & Sons Co., 4011 Fairview Ave., Boise. **$2,499,364.**

Idaho, Moscow—University of Idaho, Moscow, steam generating unit for central heating plant, to Wyatt-Kipper Co., 3512 Airport Way, Seattle, Wash. **$98,900.** L. Bouillon & Assoc., 1411 4 Ave. Bldg., Seattle, Wash. engrs.

Illinois—Tri-County Electric Co-operative, Inc., Mount Vernon, 180 mi. rural distr. lines in Jefferson Co. and vicinity, incl. sys. imprvs., own forces. **$395,000.** Michael Drazen & Assoc., 4903 Delmar Blvd., St. Louis, Zone 8, engrs.

Illinois—Egyptian Electric Co-operative Assn., Steeleville, 100 mi. rural distr. lines, Randolph Co. **$137,500.** Michael Drazen & Assoc., 4903 Delmar Blvd., St. Louis, 8, Mo., engrs.

Ill., Springfield—State Div. Architecture & Eng., Armory Bldg., general contract power plant, Kline and Madison Sts. to John Felmley Co., Bloomington. **$878,000.**

Ia., Ames—City, Jan. 5, light and power plant imprvs., power plant equip., from R. V. Leary Co., Securities Bldg., Des Moines, **$133,865*****cooling equip., from The Fluor Corp., 2500 S. Atlantic Blvd., Los Angeles, Calif., **$49,020*****power plant structures, from Fagre Constr. Co., Estherville. **$73,628.** Proposed work published Dec. 20, p. 116.

Missouri—Lewis County Rural Electric Co-operative, Monticello, sys. imprvs., warehouse, 162 mi. rural distr. lines in Lewis, Clark, Knox, Shelby, Scotland, Marion and Adair Counties, own forces. **$410,000.**

Texas—Texas Electric Service Co., Electric Bldg., Fort Worth, 60 mi. 60,000 volt electric transmission line, between Lamesa and Denver City, own forces. **$375,000.**

Washington—Bureau Reclamation, Dpt. Interior, Building 1-A, Denver Federal Center, Denver, Colo., Jan. 22, nine 43,000 kva. transformers for Units R4, R5, and R6, Columbia Basin Proj., Grand Coulee Power Plant, Spec. 2048 from Allis-Chalmers Mfg Co., Continental Oil Bldg., Denver, Colo. **$916,400** f.o.b. Odair.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Calif., San Francisco—Mt. Zion Hospital, 2200 Post St., plans by Milton L. Pflueger, 580 Market St. and S. Ridmore, Owings & Merrill Associated, 1 Montgomery St., 6 story, 187 bed reinforced steel, concrete, limestone hospital addn. **$3,000,000.**

Ill., Anna—Anna City Hospital, 50-bed hospital. **$680,100.**

N. Y., New York—1407 Broadway Corp., 285 Madison Ave., Zone 17, 40 story office bldg. on site bounded by Broadway, 7 Ave., 38 and 39 Sts., to J. H. Taylor Constr. Co., 31 Union Square, Zone 3. Est. **$14,500,000.**

Tex., Dallas—Hugh E., John A., and Hugh E. Prather, Jr., 24 Highland Park Shopping Village, masonry Northridge Apartments, concrete beam and pier fdns., on N. W. Hy. east of Preston Rd. **$4,250,000.**

Wash., Spokane—U. S. Eng., 4735 E. Marginal Way, Seattle, 200 bed general veterans hospital for Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C. $3,750,000. Plans deposit $50. J. Graham. Dexter Horton Bldg., Seattle, Zone 1 and G. M. Basque & Son, Washington Trust Bldg., archts.

Low Bidders & Contracts Awarded

Calif., Imola—State Div. Architecture, P. Wks. Bldg., Sacramento, general contract Units 1 and 4 South Ward Group, Napa State Hospital, to Moore & Roberts, 693 Mission St., San Francisco. **$1,887,777.**

Ill., Chicago—State Dpt. P. Wks. Bldg., Springfield, general contract two 1 story, brick, steel concrete residential units for patients, Chicago State Hospital, to James McHugh Constr. Co., 5449 S. Park Ave. **$1,425,000.**

Md., Baltimore—The Sun. A. S. Abell Co. Publishers. The Sun Bldg., newspaper plant, to George A. Fuller Co., Munsy Bldg., Wash., D. C. **$2,500,000.** Bids 1/10.

N. Y., Orchard Park—Orchard Park Central School Dist. 1, Junior Senior High School, to William Borneman, Inc., 1681 Fillmore Ave., Buffalo. **$1,247,098.**

NEWS ABOUT PEOPLE

Providence Utility Makes Engineering Appointments

William W. Broadbent has been elected vice-president in charge of production for the Narragansett Electric Co, Providence, R. I. He was graduated from Lehigh University in 1910, being first employed by Westinghouse Electric at East Pittsburgh. He then engaged in construction work with the J. M. Bastress Co, Harrisburg, Pa. In 1913 he joined the New England Engineering Co, Waterbury, Conn. After three years of power plant construction, Mr Broadbent became assistant superintendent of power and lines, Shore Line Electric Railway, Norwich, Conn. In World War I he served with the 23rd Engineers, then joining the Narragansett company's construction staff and later heading this branch of the organization. In 1925 he was named assistant superintendent of generation.

W. W. Broadbent

April, 1941, found him superintendent of the southern division of the New England Power System, with which Narragansett is affiliated.

Ralph E Secord, superintendent of distribution since 1945, has been elected vice-president in charge of distribution. He has also been made a director of the Rhode Island Power Transmission Co. Mr Secord was graduated from the University of New Brunswick in 1924. After four years with the Stone & Webster Engineering Corp, he joined the New England Power Association in charge of sales. Later he was sales manager of the Quincy (Mass.) Electric Light & Power Co. He joined Narragansett in 1930 as assistant superintendent of distribution. Mr Secord is a past-president of the Providence Engineering Society, and past chairman, Providence section AIEE.

R. E. Secord

John J O'Brien has been appointed superintendent of distribution for the company. He was graduated from Massachusetts Institute of Technology in 1925, at which time he was with the Westinghouse general engineering department. East Pittsburgh. In 1926 he joined the New England Power Association's distribution engineering department at Boston. Three years later he became assistant engineer at Providence and in 1930 he joined the Narragansett company officially as superintendent of underground lines. In 1941 he was made superintendent of the lines department, and became assistant superintendent of distribution in 1945.

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▶ J. R. A. Hobson, consulting engineer of Richmond, Va., who was director of public utilities for that city from 1938 to 1945, has been appointed chief engineer of the Jamaica Water Supply Co, Jamaica, Long Island, N. Y. Following his service as director of Richmond public utilities, Mr Hobson was connected for sometime with the Arizona Power Authority as an engineer at Boulder Dam, later returning to Richmond.

M. McK. Koch of Colorado Heads Electric Operations

(See Front Cover)

Marshall McK. Koch has been appointed vice-president and general superintendent of electric operations of the Public Service Co of Colorado, succeeding the late Floyd F. McCammon.

Mr Koch has been associated with this company or related companies since 1914 when he was employed as a junior engineer. A graduate of Cornell University, he was engaged in power plant design work from 1916 until 1917 when he entered military service in World War I. Returning from the service, he was engaged in electric distribution engineering work until 1921. Mr Koch was superintendent of the electric distribution department from 1921 until 1947 when he was advanced to the position of assistant general superintendent of electric operations.

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▶ Harry E. Graves, superintendent of the Lyndonville (Vt.) municipal electric light department, retired last month. His successor is Leland F. Gray, who was electrical superintendent of the Central Vermont Public Service Corp, St. Johnsbury.

▶ Roger H. Martin has been appointed manager of the industrial department, Sturtevant Division, Westinghouse Electric Corp. Mr Martin has been with Sturtevant since 1933. He succeeds Alexander Martin, who has gone to Pittsburgh to head the division's central district.

▶ Richard W. Shoemaker, formerly consulting engineer for Chase Brass & Copper Co, Inc, and the Kennecott Wire & Cable Co, has established an office in Oakland, Calif., to do consulting work in electrical engineering and radiant heating. He is associated with Robert Bruen in Thermo-Radiant Consultants. In addition he has been appointed consulting engineer for the Oakdale Irrigation District in connection with irrigation and power developments on the Stanislaus River. Mr

Shoemaker, prior to his work with the Chase company, was engineer for the Turlock and Modesto Irrigation Districts during the building of the Don Pedro Dam and acted in a similar capacity for the Merced and Imperial Irrigation Districts in their power developments. He wrote the "Chase Electrical Handbook" and directed studies resulting in publication of the "Chase Radiant Heating Manual."

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Ross Made Vice-President of Indianapolis Utility

Announcement has been made of the election of P. W. Ross to a vice-presidency of the Indianapolis Power & Light Co. He will be assistant to the president, H. T. Pritchard.

Mr Ross, who has been vice-president and general manager of the Southeastern Indiana Power Co, with headquarters at Rushville, Ind., for the past 2 years, previously had more than 19 years' experience in the IP&L organization.

He first joined the Indianapolis utility as an electrical engineering graduate from Purdue University. Starting as a commercial engineer, he was made director of street lighting engineering in 1929, was given charge of rural distribution in 1936, and was appointed executive assistant in 1939. He also served as general manager of the Mooresville Public Service Co, a subsidiary of Indianapolis Power & Light Co.

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▶ L. Z. KIDDER has been appointed chief engineer of the Missouri State Department of Public Utilities, succeeding G. Mason, resigned. Mr Kidder had been identified with Duquesne Light Co, Securities and Exchange Commission, and with the Production Credit Corp.

▶ WILL H. FISCHER has retired as vice-president of the Southern California Edison Co. Mr Fischer joined the utility as legislative representative in 1922.

▶ JOHN V. V. SCHOONMAKER has been named president of the Diesel Motors Corp, Port Washington, L. I., New York, to succeed his brother, Robert, who recently died.

▶ W. P. CONYERS, JR, vice-president of the Taylor-Colquitt Co, Spartanburg, S. C., has resigned. Starting with the company in 1923 as bookkeeper, Mr Conyers advanced to the position of executive vice-president and treasurer.

H. Ward Zimmer Assumes Broader Executive Duties

H. Ward Zimmer, formerly vice-president in charge of the radio tube division, Sylvania Electric Products Inc, has been appointed vice-president in charge of manufacturing operations for all company divisions.

Mr Zimmer joined the executive staff of the company in 1919 as purchasing agent, and served as general manager of the radio tube division during the war. It was in 1945 that

H. W. ZIMMER

he was elected vice-president in charge of the radio tube division.

Transfer of R. W. Andrews, merchandise manager of the radio tube division, from Williamsport, Pa. to Emporium, Pa., has also been announced. At Emporium he will assume direction of all factory sales activities in addition to managing the merchandising of radio tube division products.

Don P. Caverly, director of Sylvania's lighting center in New York, has been named manager of the commercial engineering department, which has been enlarged to include the lighting center's activities. He succeeds Harris Reinhardt, who has been appointed assistant to the director of industrial relations. Mr Caverly has been identified with Sylvania since 1937.

R. P. Almy has resigned as assistant general sales manager for the radio division. He has acquired part-ownership in the Dixie Radio Supply Co of Columbia, S. C., and will become vice-president and assistant general manager of that company. His service with Sylvania dates back 20 years.

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▶ DR HANS F. MAYER, formerly director of the Berlin laboratory of Siemens & Halske, has been appointed as professor of electrical engineering at Cornell University. One of Germany's foremost electrical engineers, Dr Mayer joined the Berlin central laboratory of Siemens & Halske in 1921 as a research engineer, and in 1936 was made director of the unit. He served in that capacity until his imprisonment by the Nazi government in 1943. Upon his release at the end of the war he returned to the Siemens & Halske organization.

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New Assignments Announced by Monsanto Chemical Co.

Announcement of new engineering and sales appointments was recently made by Monsanto Chemical Co.

Howard A. Marple has been named director of the newly created advertising department. Mr Marple, who has been with the company since 1937, served as editor of *Monsanto Magazine* for many years. He has been active in industrial publication circles and, since 1944, was manager of the company's trade advertising.

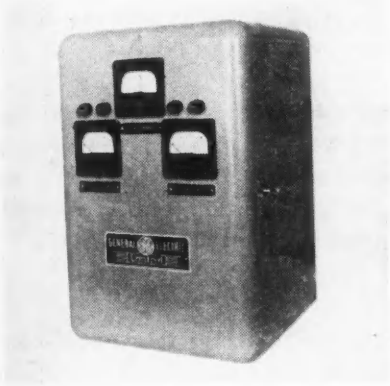
A department of economic research has been established with William H. Winfield as manager. For 6 years prior to the war, Mr Winfield served as director of industrial research for the Weyerhaeuser Sales Co, St. Paul, Minn. During the war he served as a naval commander in charge of the management engineering division, Supply Corps. Before going to Monsanto, he was a marketing consultant for McKinsey & Co, New York.

Dr James H. Lum, formerly executive director for Monsanto at Clinton Laboratories, Oak Ridge, Tenn., has gone to Melbourne, Australia, to become managing director of Monsanto (Australia) Pty, Ltd.

Dr Reid G. Fordyce has been appointed sales development manager of Monsanto Chemical Co's plastics division, and Edmund S. Childs, assistant manager of the sales development department. Dr Fordyce has been a research group leader at Monsanto's central research department, Dayton, O., and is replacing C. L. Jones, Jr, who recently was appointed sales manager for the protective coatings department of the Merrimac division. Mr Childs has been connected with the organization since 1940.

Appointment of Edwin L. Hobson as sales manager of thermoplastic molding materials has also been announced. Formerly assistant branch manager for Monsanto's New York plastics office, he replaces Arnold C. Martinelli, who resigned to become general manager of Rogers Plastics, Inc, North Wilbraham, Mass.

NEW EQUIPMENT



Amplidyne Control Unit

A NEW PACKAGED amplidyne control unit in a sheet steel enclosure has been announced by the Control Divisions of the General Electric Co, Schenectady, N. Y. It is designed for use on steel mill and similar mill and processing line control applications where speed, current, or voltage regulation are required. The new unit brings together in one 18 x 12 x 11-in. package all the adjusting rheostats, capacitors, rectifiers, and instruments required for the amplidyne regulating circuit. In addition the new control provides motor speed limit control, field forcing during acceleration and declaration, and stabilizing functions.

The control uses small rheostats in place of conventional resistor units. It can be mounted on the front of the main panel board, recessed in the panel, or mounted back-of-board, as desired. All adjustments it is reported, can be made with a screw driver. Once an adjustment is made, it is clamped by a locking device. To aid the operator in making adjustments, indicating instruments are provided on the front cover.

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Arc Welding Machine

NEW "HORNET" 36A motor-generator arc-welding machine in 200, 300 and 400-amp models of compact design are made available by Wilson Welder and Metals Co, Inc, 60 East 42nd St, New York 17, N. Y.

The new heavy-duty machine with current control is said to be smaller in size and weighs one-third less than the previous models. This machine is designed for either 220 or 440 with no change in relays or additional wires being required for voltage reconnection. The design includes weather-resistant totally-enclosed drip-proof construction and special moisture-proof insulation.

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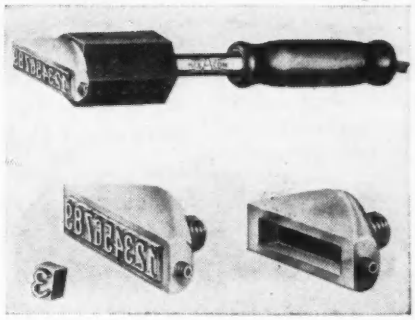
Branding Irons

ADDITION OF A LINE of interchangeable-character electric branding irons has been announced by Hexacon Electric Co, 206 West Clay Ave, Roselle Park, N. J. The unit is equipped with a 6-ft cord and plug, and can be operated on 110 or 220-v a-c or d-c circuit.



The iron is claimed to make a quick, deep brand on wood, rubber, bakelite, plastic and wallboard. It is suitable for numbering poles and dating batteries and tires.

Stock sizes of branding irons have a master die holder for eight or less removable characters in heights of ¼, ⅜ and ½ in. The individual characters are said to be changeable while hot by the adjustment of a set screw.

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Pressure Transducer

A NEW PRESSURE transducer in the range of plus or minus 20 in. of water has been announced by G. M. Giannini & Co, Inc, 285 West Colorado St., Pasadena 1, Calif. It is suited to galvanometer-recorders, strain gages and telemetering links.

Type 4713 transducer utilizes the slack-diaphragm principle. One end of a spring-linkage movement is fastened to dome of transducer; other end to a bellows. Half of spring is wound counterclockwise; other half clockwise. A microtorque potentiometer wiper is fastened at center of the linkage. A small movement at the bellows end of the linkage induces a large rotation of the wiper on the coil of the microtorque. Large voltage variations result from small changes in pressure.

The unit weighs 6 oz. Performance values reported are: Accuracy, 0.4 in. of water, 1% of full range at room temperature; overpressure 3 psi; frequency response 20 cps or higher; resistance 100 to 10,000 ohms; temperature exposure from minus 65C to plus 70C.

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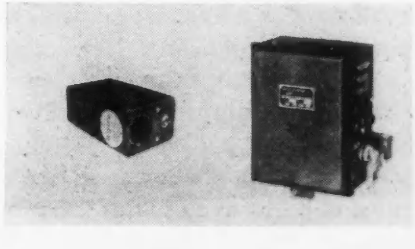
Registration Control

A NEW ELECTRONIC registration control for use with packaging machines using web-fed wrappers has been developed by the Ripley Company, Inc, Middletown, Conn. The control is said to be so highly color-sensitive that correction in the positioning of the wrapping material is possible on such low color contrasts as red or brown on yellow, even though the marks are as fine as 0.015 in.

The control consists of a scanner (left) and amplifier (right) and built-in relay. The latter has connections provided so that the cam on the feed of the packaging machine automatically corrects the position of the label whenever the web of material gets out of register.

Same method of scanning may be used when changing over from an opaque material to one that is translucent or transparent. The control may be used to scan a dark spot on a light background, or a light spot on a dark background as in scanning foil.

Operation rate is 750 per minute with correction on any sequence of registration marks such as every 5th, 10th, etc. Connections can be made for 115 or 230 v, 25 to 60 cycles.



ELECTRICAL BUSINESS OUTLOOK

UPSURGE IN POWER OUTPUT goes on. (See chart). January has seen new records in actual production. That's unheard of. Pre-Christmas week, with its lighting load, always before was the annual peak.

With adjustment for normal seasonal decline at this time the power curve has zoomed to extraordinary heights. Can power hold that trend? Why have loads zoomed?

Weather is a big factor. Unseasonable cold weather and dark days in the nation, including the South have boomed lighting and heating loads. Drought on the West Coast also boosted irrigation demands.

Beneath it all, basic demand is climbing. Weather last summer also temporarily boosted power output sharply (then it was heat and drought). So the adjusted curve fell back for a while. But by year-end it was at new highs.

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LAST AVAILABLE BREAKDOWN of sales is for November. Total was up almost 11% over the year before. Utility sales to industry were up 10% in that month—though industrial production was but 5% above a year ago. Residential and commercial sales were up 14%, miscellaneous sales much less.

Those basic gains go on. January total power output was up 11% from a year ago. Industrial production in January may well have gone to another peacetime record. The Federal Reserve Board's December index was 191 vs. 192 in November.

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INDUSTRY WILL HAVE up to 10% more steel to use in 1948. Ingot capacity is now 94.2 million tons, up three million from a year ago. But 1947 output was only 85 million tons. Lack of scrap and coking coal were two barriers last year. Flow of both materials is improved now. Coke and pig iron capacity have risen. New capacity all along the line will come in this year. Output gains from these factors may run up to five million tons, or 6%.

U. S. consumption, however, can go up more sharply. Steel exports, even under the Marshall Plan, will be no more than in '47. And this year is likely to see less steel added to inventory than last year. Biggest gains will come in scarce sheet and strip: capacity to make flat-rolled products will gain more than 10%.

Last year's total of finished steel was equal to prewar 1941's 62.5 million tons. But the flow of steel to users has shifted since '41. Construction, autos, railroads, pipelines, shipbuilding, munitions, and exports all took less steel than prewar.

Machinery lines took a lot more steel, however. Electrical machinery, in particular, got 25% more than in 1941. It also racked up an unusual gain in use between 1946 and 1947. Steel going into power generation and distribution jumped more than 50%.

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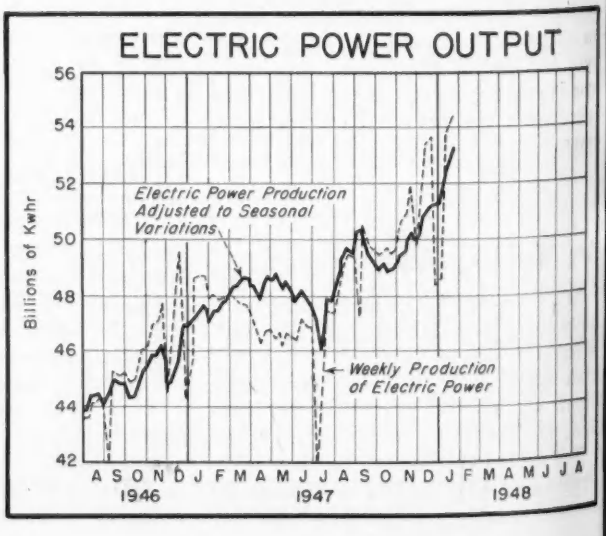
EXPORTS TOOK well over half a billion dollars of electrical manufactures last year. That was 8% of our output, as against 7% sold abroad in 1946, and 6% in 1939. Dollarwise, 1947 exports were more than two-thirds above 1946's $300 million figure.

Aid to Europe will not insure equally high exports of electrical goods for 1948. Western Europe took just over 10% of the 1947 export total. And it is not down for much electrical equipment in days to come. The bulk went to Latin America and the British Dominions. But they used war-saved gold and dollars for much of the 1947 purchases. And those funds are being rapidly drained away.

Marshall Plan aid can provide dollars for three-way trade to sustain electrical exports, however. Latin America and Britain's Dominions are raw material suppliers for Europe. The Plan calls for funds which Europe can use to buy food from these areas. When paid in dollars, they can, in turn buy from us. And electrical equipment, except for such things as radios, ranks near the top of their import priorities.